



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

# QUARTERLY JOURNAL

OF THE

## STATISTICAL SOCIETY.

---

DECEMBER, 1856.

---

*British Association for the Advancement of Science. Twenty-sixth Meeting, 1856. (Cheltenham.)*

*Section F.—Economic Science and Statistics.*

[Opening Address by Lord Stanley, M.P., President of the Section.]

I BELIEVE it will be my duty to open the proceedings of this Section by a few words relative to the purpose of our meeting; and I must begin by observing, that the remarks which follow were prepared before the passing of that resolution of yesterday, which has enlarged the scope of our duties so as to include, in addition to Statistics, properly so called, Economic Science in general.

It is needless in this presence to define, at any length, the nature or the object of statistical science. The axiom on which that science is based may be stated thus: that the laws by which nature is governed, and more especially those laws which operate on the moral and physical condition of the human race, are constant, and are, in all cases, best discoverable—in some cases only discoverable—by the investigation and comparison of phenomena extending over a very large number of individual instances. In dealing with the individual human being every thing is uncertainty: in dealing with MAN in the aggregate, results may be calculated with the precision and accuracy of a mathematical problem. To take a familiar instance,—the length of a single life can never be known beforehand; but by the accurate keeping of returns the aggregate length of ten thousand or a hundred thousand lives is easily ascertained. This aggregate length, the conditions of life being generally the same, approximates to a constant quantity, however often the experiment be repeated; and from that quantity, thus obtained, we deduce an average which, as the experience of every insurance office shows, is near enough to the truth for ordinary purposes of calculation. Accidental diversities, whether of internal constitution or of external circumstances, tend to neutralize one another. Their influence diminishes as the area of investigation increases, until, if that area be sufficiently extended, we are justified in disregarding them altogether, and in admitting as approximately, if not as absolutely, true, the general inference to which our successive trials point. I will not lead you into those strange and startling conclusions to which Quetelet has come, when, comparing some of the averages obtained with one another, and

representing them in mathematical form, he finds in the laws thus discovered a close resemblance to, perhaps an actual identity with, those which operate in physics; as, for instance, when he lays it down that the obstacles which oppose the increase of population act in a manner exactly the same as does the resistance of the medium in which a body moves to the motion of that body. Wide as is the field of thought which such a suggestion opens, it must probably be, for many years, premature to enter it: the laws as yet made known to us by statistical research are too few to allow of generalisation relative to their mutual inter-connection. Enough to cite the dictum of Quetelet, confirmatory of what was said above, "All observation tends to confirm the truth of this proposition, that that which concerns the human race, considered collectively, is of the order of physical facts: the greater the number of individuals, the more completely does the will of individuals disappear, and allow the series of general facts, which depend upon the causes by which society exists and is preserved, to predominate. . . . We must admit, that on submitting to careful experiment unorganized bodies, and the social system, we are unable to say on which side causes act in their effects with the greatest regularity."

This, then, is the first characteristic of statistics as a science: that it proceeds wholly by the accumulation and comparison of registered facts;—that from these facts alone, properly classified, it seeks to deduce general principles, and that it rejects all *à priori* reasoning, employing hypothesis, if at all, only in a tentative manner, and subject to future verification. It starts from the assumption, verified by many trials, that human action, fluctuating as regards the human UNIT, is approximately invariable as regards the masses which make up society. But there is another aspect in which it may be considered. As a rule, the degree of certainty which attends any science is exactly proportioned to the extent to which such science admits of the application of numbers. We know what has been done for chemistry by the discovery of a single numerical law—the theory of definite proportions—turning, by one stroke, into a science what was before little more than a collection of important but detached observations. And what we aim at in statistics is, to substitute for vague phrases, intended to express certain qualities, arithmetical formulæ by which the same idea may be conveyed with a precision to which language alone cannot attain. For instance, the uneducated man, speaking of a climate or season of the year, will say only that it is warm, hot, or very hot; the statistician registers the temperature of each day, strikes an average, and gives his result, in numerical form, extending, it may be, over a period of several years, and calculated, accordingly, with the most absolute accuracy of which human investigation is capable. Again, the traveller, in describing a nation which he has visited, writes that offences of violence are exceedingly common, probably more so than in any other country; the statistician obtains returns of convictions, distinguishes the different classes of crime, ascertains the per-centage of murders, or assaults, per head, on the total population, allows for the probable amount of undetected criminality, and finally compares these results with others similarly obtained in other parts of the world.

When, therefore, in discussing social questions, we apply the statistical test, we are really doing nothing more than appealing from imagination to fact—from conjecture to certainty—from an imperfect to a perfect method of observation. In the principle, strictly speaking, there is no novelty: every sensible and observing man who has lived in a civilized state of society has been, to some extent, a statistician; the novelty consists, first, in the greater accuracy with which, and the enlarged scale on which, facts can be collected in modern Europe; and, secondly, in the practical application of that theory, which, to philosophers must, from the analogy of inanimate nature, have always appeared probable—the theory, namely, that organized beings, taken in the aggregate, are governed in their acts by determinate and discoverable laws.

It is obvious that in a science of this kind, unlike many which have occupied the attention of mankind, little room is left for imagination, and as little for error. On the first ground, the study is unattractive even to many who appreciate its value; on the second, it is eminently and necessarily progressive. “Hypotheses non fingo,”—those memorable words of Newton’s—should be written over the door of every Statistical Society in Europe. Nor is there any branch of mental exertion so calculated to promote a cosmopolitan habit of thought and feeling. Man is the object studied; and man, so studied, is seen to vary in different countries only in consequence of discoverable influencing causes, such as race, climate, food, laws, modes of life, &c. However great, therefore, the external differences between branches of the human family, the tendency of sociology is to eliminate these differences one by one, to refer each of them to its several specific origin, and thus finally to bring to light the essential unity of type which underlies them all.

I would also observe, that as an experimental science, the progress of statistics is not liable to those delays which impede the advance of many other branches of knowledge. Where, as in mathematics, the work to be done is transacted necessarily and exclusively within the mind of the discoverer,—where, not the quantity, but the quality of intellect brought to bear is all-important,—great advances are rare, for the plain reason that they can only be made by men of extraordinary capacities. No number of ordinary proficients in mathematics, working jointly, can make up for the absence, or supply the place, of one Newton. But though not one man in ten thousand can be distinguished as an analyst or a geometer, the number is far larger of those who possess the mental requisites for statistical investigation, at least in its simpler forms: and without disparaging the remarkable talent for arrangement and generalisation evinced by such men as Quetelet, and by some of our own countrymen whom I will not here mention, it may be safely affirmed that the extension of statistical inquiry depends less on the appearance among us of any one mind of more than common power, than on the sustained and co-operative industry, encouraged by the State, of many minds trained to this pursuit, and each taking a separate and distinct department in which to labour.

It is almost superfluous to point out the sources of those errors which most beset statisticians. They may, I think, be reduced under

two heads: (1.) Calculation of mean results from an insufficient number of data; a fault, from the effects of which, in finances, many provident societies are suffering grievously: (2.) Calculation of mean results without sufficient care being taken to eliminate disturbing causes: whether this omission arises from the classing together of phenomena essentially distinct, and referable to separate laws, or from omitting to make allowance for imperfections in the data supplied, *e. g.*, as though one engaged on criminal statistics were to assume that all offences committed were actually brought to light, overlooking those in which no detection follows, and, consequently, in which no trial takes place. Neither of the sources of error which I have mentioned are difficult to avoid. The one danger against which they warn us is that of premature conclusions. In all physical science, but in no science more than this of which we treat is suspension of judgment necessary. I mean by the phrase, that temper of mind which says, "I neither believe nor disbelieve; evidence is wanting to do either. I only wait and hold myself free from bias until further facts are adduced." How easy this is in theory,—how hard and painful in practice need not be told to any one who has given time, and thought, and toil to the proof or disproof of a scientific hypothesis.

Time would not allow me to attempt even the most rapid and hasty survey of what has been done, and of what yet needs doing, in the way of statistical research. Generally,—I think we may say this of the progress of the science in England,—that what defects remain arise principally from causes beyond the control of individuals. Statistics are the function of the State in a sense in which no other science is so. The details of population, of employment, of instruction, of religious worship, of commerce, and of health, are already recorded in official publications; those of agricultural production we may hope will shortly follow. The branch which I principally note as deficient is that which relates to civil and criminal judicature. Lord Brougham has brought this subject before the House of Lords, and even embodied in a Bill the data on which information is needed. We require a regular and uniform record to be kept of every fact connected with the administration of the law. We require to know, in civil proceedings especially, the number and nature of suits that go to each court, the length of time occupied in their decision, the nature of that decision, and the cost to the parties. Our criminal returns might be fuller than they are: they give us at present absolutely no information respecting that vast class of offences (of late much increased,) which are dealt with under summary jurisdiction. It is not wise in any country to copy servilely the practice of another: local differences may create and necessitate diversity of procedure. But I may refer to the annual reports (two yearly volumes,) of the Minister of Justice in France, as examples of an almost perfect arrangement of complicated statistical details. One result of that publication is to show a vast local difference between department and department in the nature and amount of crime. It is obvious, that when such a difference is shown, by the lapse of a sufficient period, to be chronic and not merely casual, the Government, whose attention is thus invited, must feel itself bound to investigate the source of the evil, and, if

possible, to provide a cure. In fact, an executive regularly supplied with such knowledge may be said to have its finger on the pulse of every province, ready, at the first symptom of disease, to intervene with the requisite remedy.

There is another suggestion which I may make, and which indeed connects itself with this last. I allude to the advantage, I might almost say the necessity, of establishing a Statistical Department of Government, charged with the annual publication of such facts relative to the management of national affairs, as are reducible to numerical expression. We have statistics enough presented to Parliament every session, but they are, in the great majority of cases, called for by individuals. They are drawn out to suit the particular purpose of those who move for them: they are, accordingly, deficient in unity, and often of no use beyond the moment. Now I speak from some personal observation when I say, that at a cost hardly greater than that of these desultory, fragmentary, isolated returns, (which have in addition the inconvenience, coming, as they do, at unexpected times, and without any regularity, of throwing a sudden increase of work on particular offices,) it would be possible to present to the nation such a yearly *resumé* of administrative statistics as should, to a very great degree, supersede the present system (if system it can be called,) of moving for returns as, and when, they are wanted.

I have said, that I think a Statistical Department desirable, instead of a Statistical Branch in every Department; because the former method gives better security for unity of plan, and because the work will be best done by those whose sole and undivided business it is.

I have not referred to the meetings of the International Congress of Brussels and Paris, because on such a subject I could offer no remark that would not naturally occur to those whom I address. Such meetings have a twofold value. First, they extend the field of statistical research: and we have seen that accuracy of result varies directly as the magnitude of the area of investigation. Secondly, they form a new link between nation and nation; because, though speech differs, arithmetical notation is the same everywhere. In proportion, therefore, as numerical is substituted for descriptive statement, we approach nearer to that otherwise impracticable dream of philosophers—a universal language.

There is, I believe I may state, a probability of the Congress of 1857 being held in London; an expectation which seems both natural and reasonable, inasmuch as it has been averred in public, and not denied, that the first design of holding such international meetings was suggested by the analogy of the Hyde Park Exhibition of 1851.

Should the event I allude to take place, it will become the duty of all concerned in statistical science to see that such an opportunity does not pass unimproved; so that 1858 may find us with a thoroughly organized system for the annual collection and publication of national facts, assimilated, if possible, to the systems of France and Belgium. For it must be borne in mind, that the objects to be aimed at are two: one, the adoption of a method as perfect in itself as possible; the other, the assimilation of that method to those which prevail elsewhere, so that nations may mutually profit by each other's experience.

As a proof how much such comparing of notes is required, I may

remind you that the census of Ireland and Scotland was taken in a manner different from that of England, while no attempt has ever been made to bring the entire British empire, including India and the colonies, under a single statistical organization.

The constitution of such a statistical department as we require is matter of fair discussion at the approaching Congress. Probably the most effective combination of working talent would be that obtained by the appointment of a Commission, or Board, to preside over the issuing of official publications, partly composed of scientific men, partly of members of the permanent or parliamentary administration, (the former preferably, as having more leisure,) who would bring in the necessary element of a knowledge of official customs. This is, I believe, the system actually existing in Belgium. In Prussia there is a Minister at the head of the Statistical Department. Those who wish to see the question more fully discussed will find information in a valuable Report by Dr. Farr to the Registrar-General, dated October, 1855, forming p. 108, *et seq.*, of the Registrar-General's Sixteenth Annual Report. It was also gone into at the Paris Congress of 1855, and a debate upon it will be found in the volume of proceedings.

I wish also to point out to the Association the advantage of such a communication between the Home Government and the leading British colonies, in reference to the approaching Congress, as may enable such of them as desire it to represent themselves by means of delegates.

Before I conclude, I should wish briefly to allude to a work in which the London Statistical Society is now engaged.

A Committee was appointed by this Society on the 25th January of this year to collect information relating to the Beneficent Institutions of the Metropolis. The class of institutions to which their attention was first directed was the Medical Charities; and the inquiry has already proceeded so far as to render it probable that the total income of the London hospitals and dispensaries, including the Samaritan and other funds connected with them, added to the strictly medical expenditure of the Poor-Law-Board for London, and the incomes of lunatic-asylums and alms-houses, will amount to a sum fully equal, when the difference of population is taken into account, to the expenditure of the hospitals and *hospices* of Paris.

I have now only to announce to you the papers about to be read, and to request attention to the following rules, laid down for the sake of brevity and clearness in our proceedings:

"To avoid reading long consecutive lists of figures, and, as far as possible, to give only results.

"Where money is in question, to avoid shillings and pence, stating only the number of pounds.

"Where large sums are concerned, to give round numbers, omitting units."

Of course there is a medium in observing these directions; and if a choice lies between the two, better be obscure than inaccurate. All I mean to convey is, that over-minuteness in these matters is apt to defeat its own ends.

---